

Materials Science and Technology Division

personal *profile*

Lisa Dougherty

The examined life

Lisa Dougherty enjoys investigating the details—whether that is a metallographic sample on a transmission electron microscope or the life of a fictional character on the printed page.

A postdoctoral associate on the Structure/Property Relations' (MST-8) Dynamic Properties Team, Dougherty recently published her first book, "The Concertmaster: Lure of the Stringed Siren." The story of a young, gifted violinist who stumbles into a violent altercation and finds his life altered, the novel is the result of Dougherty's keen observation skills, which have aided her as both a writer and a scientist.

Delving into the details

Raised in a family of engineers, Dougherty studied piano and classical guitar as a child. She planned to combine her interests in music and science as a sound engineer, and with a performance scholarship to Indiana's Ball State University, she originally pursued a degree in music engineering technology, augmenting her studies with a minor in physics.

"I like the fundamental sciences and that all starts with physics. I like getting down to the bottom of things," said Dougherty. While playing in a rock band and spending a summer on a fellowship at Arizona's Lowell Observatory, Dougherty went on to earn a bachelor of science degree in physics and a bachelor of music degree in classical guitar.

As a materials science graduate student at the University of Illinois, Champaign-Urbana she discovered a passion for working on the TEM, honing her skills with a research project investigating the mechanisms operating during dynamic recrystallization in an aluminum alloy.

"Some students seemed to view electron microscopy as a tedious chore to suffer through in order to get the data," she said. "I, on the other hand, found that I enjoyed the microscopy much more than the data crunching at the end." To Dougherty, the TEM "is just the coolest instrument in the world. It's got such great resolution," she said. "You can look through any material and see what is going on inside."

With a doctorate in materials science and engineering with metallurgy specialization, Dougherty moved to Los Alamos in 2001 when her husband, Eugene, accepted a position at the Laboratory as a computer software engineer. She had fallen in love with the area when, as an undergraduate, she spent a semester as an intern in X Division as part of the Department of



With an eye for detail, MST-8 postdoctoral associate Lisa Dougherty enjoys both transmission electron microscopy and fiction writing. She recently published her first novel and participated in an international TEM workshop.

Energy's Science and Engineering Research Semester program.

When a postdoctoral position on MST-8's Dynamic Properties Team became available, Dougherty said it was "the perfect fit."

"Lisa has great attention to detail," said Ellen Cerreta, Dougherty's mentor and an MST-8 technical staff member. This skill "not only allows her to make important observations as a microscopist, but it also causes her to perform carefully thought out experiments that address specific questions important to meeting project deliverables."

Dougherty's work is supported by the Joint Munitions Program, a program funded by the Department of Defense and the Department of Energy.

Dougherty's skills as a microscopist earned her an invitation to the Pan American Advanced Studies Institute on Transmission Electron Microscopy in Materials Science workshop held this summer at the Universidad de Chile, in Santiago, Chile. Limited to just 48 researchers the workshop allowed participants to learn more about recent results and advances in techniques of sample preparation and microscope operation, particularly on the latest

personal *profile*

aberration-corrected microscopes.

John Bingert, Dougherty's team leader, said the workshop was "a real opportunity for Lisa to be exposed to other budding researchers in the field and get some really excellent training." He described her as both "persistent" and "creative." Her microscopy presentation given when she first arrived at the Laboratory for her postdoctoral work was "not like anything I'd seen before," he said. The in situ microscopy movies required hours of persistent, patient labor in the dark of a microscopy laboratory.

Literary escape

Writing fiction allows Dougherty to peer into another realm—the fictional world of her characters—their motivations and experiences.

"I've always been creating characters in my head," said Dougherty, who views writing as an escape. Dougherty, who used to race bicycles to "blow off steam," and who still competes competitively, said she now also enjoys "slipping into another world with an unfamiliar cast of characters and exploring that place."

"The Concertmaster" is a two-book story which Dougherty spent more than two years writing as she cared for her two young children, Allegra and Sean. The book's theme, an exploration of how someone with the potential for great success finds his life changed by one mistake, just came to her, she said, "and I wrote it down." She did, however, do extensive research, including consulting with a psychologist at a medium-security penitentiary, touring the facility, and interviewing inmates.

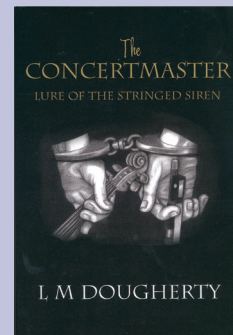
Although she develops an outline before beginning to write, Dougherty allows herself to be open to unexpected twists which may change the plot—something that happened in "The Concertmaster."

"During the final edits of the second—and final—book of the series, I completely changed the ending," she said. And like a true scientific observer, she said she tries "not to force the story to go in any direction. I just let it flow where it naturally should flow, which sometimes doesn't follow a nicely crafted outline very well."

Dougherty said she views her novel writing as something that "gives balance to a career centered on science...I think writing helps my work at the lab because I believe the best scientists are extremely creative people, so it is useful to exercise your creativity."

— By Karen E. Kippen, MST Communications

Logan can hear his friend Jim in the parking lot, fighting the officers like he fights everybody, every day. The shouting rips apart the peace of the night. Once Logan steps across the threshold of the motel room—and sees a trail of crimson footprints—he knows that his life is out of control.



This cannot be happening to him. Not to Logan Kossowicz, the violinist, the boy with a future, who was supposed to be heading to Julliard on a full scholarship

Forced into the back of a patrol car, Logan slumps as he realizes that dreams cannot begin here. This is where dreams end. This is where hope ends. Everything changes tonight.

*From "The Concertmaster,"
by Lisa Dougherty*